

## CLAIMS

1. A method for producing a single crystal in accordance with Czochralski method by flowing an inert gas downward in a chamber of a single crystal-pulling apparatus and surrounding a single crystal pulled from a raw material melt with a gas flow-guide cylinder, wherein when a single crystal within N region outside OSF region generated in a ring shape in the radial direction of the single crystal is pulled, the single crystal within N region is pulled in a condition that flow amount of the inert gas between the single crystal and the gas flow-guide cylinder is  $0.6 D(\text{L/min})$  or more and pressure in the chamber is  $0.6 D(\text{hPa})$  or less, in which  $D$  (mm) is a diameter of the single crystal to be pulled.

2. The method for producing a single crystal according to Claim 1, wherein the single crystal to be pulled is a silicon single crystal.

3. The method for producing a single crystal according to Claim 1 or 2, wherein the diameter of the single crystal to be pulled is 200 mm or more.

4. The method for producing a single crystal

according to any one of Claims 1 to 3, wherein the single crystal within N region is pulled by using the gas flow-guide cylinder that Fe concentration is 0.05 ppm or less, at least, in a surface thereof.

5. A single crystal produced by the method according to any one of Claims 1 to 4.

6. A silicon single crystal wafer having a diameter of 200 mm or more produced in accordance with Czochralski method, wherein the wafer is occupied by N region outside OSF region generated in a ring shape in the radial direction of a single crystal, and Fe concentration of the entire plane in the radial direction including a peripheral part of the wafer is  $1 \times 10^{10}$  atoms/cm<sup>3</sup> or less.